

What is claimed is:

1. A sampling tube-type smoke detector comprising:

a smoke detection device detects smoke particles contained in the air suctioned through a sampling tube from a monitored area; and

an aspirator positioned in the downstream of said smoke detection device;

said smoke detection device forms an almost straight line to a lead-in tube,

wherein said lead-in tube suctions air through said sampling tube;

a smoke sensor unit detects smoke particles contained in the air of said lead-in tube;

said aspirator forms the actuator mechanism of a rotating part that discharges the air; and

said lead-in tube and said aspirator are oriented with the central axis of said lead-in tube and the rotational axis of said actuator mechanism of said aspirator being almost the same axle.

2. The sampling tube-type smoke detector according to claim 1, wherein said lead-in tube is continuously connected to said aspirator through an expanded part;

said expanded part is formed so that the flow path expands along the traveling direction of the air.

3. The sampling tube-type smoke detector according to claim 2, wherein said lead-in tube essentially resembles an almost round-shaped cross-sectional form;

said lead-in tube and said expanded part are connected with the connection part; and

said connection part inner wall surface connects to said lead-in tube inner wall surface and said expanded part inner wall surface in a reciprocally continuous smooth curved surface.

4. The sampling tube-type smoke detector according to claim 2, wherein said expanded part inner wall surface which is continuously formed to said lead-in tube through said connection part resembles an almost semi-sphere shape; and

said expanded part is formed sequentially by said aspirator.

5. The sampling tube-type smoke detector according to claim 1, said connection part is equipped with a thin metal-like aperture; and

said aperture has an aperture diaphragm opening smaller than the inside diameter of said lead-in tube central part,

wherein the center of said aperture diaphragm opening is arranged almost on the centerline of said lead-in tube.

6. The sampling tube-type smoke detector according to claim

5, said aperture diaphragm opening of said aperture has a diameter of approximately 30 to 70 percent compared to the inside diameter of said lead-in tube.

7. The sampling tube-type smoke detector according to claim 1, said aspirator comprises a body part and a discharge part;

said body part contains said rotating part and said actuator mechanism;

said discharge part discharges air to the outside discharged from said rotating part,

wherein said discharge part is arranged in an approximately vertical direction to said rotational axis of said rotating part;

said discharge part discharges the air made to flow in a straight line from said lead-in tube and said expanded part to the side of said aspirator;

an air duct for discharging air from said rotating part is arranged in the periphery of said body part;

a discharge vent is formed in said discharge part;  
and

said discharge part is equipped with a guide which makes said air duct and said discharge vent into a reciprocally continuous smooth curved surface.